K.5
2/03

GROUNDWATER TREATMENT SYSTEM
QUARTERLY MONITORING REPORT
FIRST QUARTER 2002

AMERICAN CHEMICAL SERVICE NPL SITE
GRIFFITH, INDIANA

MWH File No. 2090601

Prepared For:

American Chemical Service NPL Site RD/RA Executive Committee
Griffith, Indiana

Prepared By:

MWH
27755 Diehl Road, Suite 300
Warrenville, Illinois 60555

February 2003

MWH
MONTGOMERY WATSON HARZA

GROUNDWATER TREATMENT SYSTEM
QUARTERLY MONITORING REPORT
FIRST QUARTER 2002

AMERICAN CHEMICAL SERVICE NPL SITE
GRIFFITH, INDIANA

Prepared For:

American Chemical Service NPL Site RD/RA Executive Committee
Griffith, Indiana

Prepared by: _____ for _____ February 13, 2003
Travis Klingforth, EIT — Date
Project Engineer

Approved by: _____ February 13, 2003
Peter Vagt, Ph.D., CPG — Date
Project Manager

TABLE OF CONTENTS

TABLES

FIGURES

APPENDIX

1.0 INTRODUCTION

MWH, on behalf of the ACS RD/RA Executive Committee, started up the on-site groundwater treatment system at the American Chemical Service NPL Site (ACS Site) in Griffith, Indiana on March 13, 1997. The groundwater treatment plant (GWTP) system was designed to treat groundwater from the Perimeter Groundwater Containment System (PGCS) and the Barrier Wall Extraction System (BWES). The original treatment consisted of a phase-separator for oil and free product removal, equalization tanks, a UV-oxidation unit for destruction of organic constituents, and an air stripper to remove methylene chloride and other organics. The treatment also included a chemical precipitation and clarification unit to remove metals, a sand filter to remove suspended solids, and activated carbon vessels for final polishing of the treated groundwater.

In 2001 an activated sludge treatment process was added to the process to reduce the volatile and semivolatile organic compounds (VOCs and SVOCs) in the collected groundwater. The activated sludge treatment process also reduces the amount of activated carbon required in the treatment process. An aerated equalization tank was also added to the GWTP in 2001 to remove VOCs from the collected groundwater, oxidize metals to increase metals removal efficiency in the chemical precipitation unit, and equalize groundwater flow through the GWTP. The activated sludge system and aeration tank have been fully integrated into the process along with the other upgrade components. Startup and optimization of the catalytic oxidizer/scrubber air treatment unit was also conducted during 2001.

The treated effluent from the treatment system is discharged to the nearby wetlands, west of the treatment system, in accordance with Agency approvals. This Groundwater Treatment System report summarizes effluent analytical data and water level gauging data collected from January 2002 through March 2002. This report also summarizes any modifications or upgrades to the GWTP during the reporting period.

2.0 COMPLIANCE MONITORING

2.1 INTRODUCTION

Effluent samples were collected from the treatment system to demonstrate compliance with the discharge limits (Table 2.1) established by Indiana Department of Environmental Management (IDEM) and United States Environmental Protection Agency (U.S. EPA). The approved Performance Standard Verification Plan (PSVP) requires quarterly effluent sampling for biological oxygen demand (BOD), total suspended solids (TSS), SVOCs, metals, and polychlorinated biphenyls (PCBs) in the system, and monthly effluent sampling for VOCs, as shown in the table below. To gather additional information, the effluent sampling was conducted on a monthly basis for all analytes. The samples will continue to be collected on a monthly basis until the treatment system is operating in a relatively steady state after completion and optimization of the groundwater treatment plant upgrades.

Sampling and analyses were performed in accordance with the recently approved Quality Assurance Project Plan (QAPP) prepared by MWH for the ACS RD/RA Executive Committee in March 2001 and approved by the Agencies in November 2001. Quality control measures were also instituted in accordance with the PSVP and QAPP. The following table and paragraphs present details on sampling and analyses, and also summarize the analytical data for the treatment system effluent.

Sampling Frequency Schedule – Groundwater Treatment System

Analytes	Cumulative Time From Startup*	Frequency
Flowrate and pH	–	Continuous
BOD, TSS, SVOCs and Metals	181 days onward	Once per quarter
VOCs	31 days onward	Once per month
PCBs	181 days onward	Once per quarter
PCBs in Sediment (one location)	–	Once per year

*Note: System was started up on March 13, 1997

2.2 SAMPLING AND ANALYSES

Effluent samples were collected each month during the first quarter 2002. Samples were collected on the following dates for this reporting period:

- January 28, 2002
- February 13, 2002
- March 7, 2002

The above samples were collected directly from a sample tap on the effluent line of the treatment system.

The samples were placed in contaminant-free containers, in accordance with the U.S. EPA Specifications and Guidance for Obtaining Contaminant-Free Sample Containers (U.S. EPA, 1992). Appropriate sample containers and preservatives, as specified in the QAPP, were used to collect and preserve the samples. Following sample collection, the sample containers were refrigerated at or below 4° C in coolers. Chain-of-Custody forms were prepared to track the transfer of samples from the treatment system to the laboratories. In accordance with the approved QAPP, the effluent water samples were analyzed for the following parameters by the following analytical methods:

Parameter	Analytical Method
VOCs	SW-846 8260B
SVOCs	SW-846 8270C
Pentachlorophenol	SW-846 8270C and SIM
Pesticides/PCBs	EPA 608/SW-846 8081/8082
Metals (Excluding Mercury)	SW-846 6010
General Water Quality Parameters (TSS and BOD-5)	EPA 160.2 and 405.1
Mercury	SW-846 7470
pH	EPA 150.1

2.3 ANALYTICAL RESULTS

GWTP Effluent Samples

The effluent monitoring data, summarized in Table 2.2, verifies that the system effluent was compliant with the discharge limits presented in Table 2.1 with two exceptions. Two exceedences were reported in the January 28, 2002 sampling event, as described below. No exceedences were reported for either the February 13 or March 7 sampling events. The analytical data sheets for the compliance samples are provided in Appendix A.

Analytical results of the January 28, 2002 sample indicated an exceedence for biochemical oxygen demand (BOD) and acetone. The sample had a BOD of 62 mg/L and acetone at 8,000 µg/L. The effluent limit for BOD is 30 mg/L and the effluent limit for acetone is 6,800 µg/L. These exceedences were reported to the U.S. EPA and IDEM immediately upon receiving the data, and a separate letter was submitted to the Agencies on February 20, 2002 summarizing the potential causes of the exceedences and the proactive and corrective actions conducted. These actions included changing out the carbon in the granulated activated carbon units (ME-33/34) on February 5, 2002 and continuing to add biomass to the activated sludge plant through seeding with "cold weather bugs" to increase the treatment efficiency of the biological treatment processes during the winter months. In addition, evaluations indicated that barrier wall extraction well EW-12 was contributing a large amount of the acetone to the GWTP influent stream; subsequently flow from EW-12 was temporarily decreased and isolated from the other wells. Flow from EW-12 will be increased as the acetone concentrations from the well decrease and/or temperatures increase.

The February 2002 compliance sample was collected February 13 and BOD and acetone laboratory analysis was expedited due to the exceedences in January. The sample results indicated BOD discharge levels were approximately one-half of the discharge limits, indicating that the corrective actions were accomplishing their objective. The sample results also indicated that acetone discharge levels were less than one-tenth of the discharge limits, thus demonstrating again that the corrective actions were effective: the system effluent was meeting the discharge requirements as of February 13.

Compuchem Laboratory of Cary, North Carolina analyzed the data. Laboratory Data Consultants (LDC) of Carlsbad, California performed third party data validation in accordance with the U.S. EPA National Functional Guidelines for Organic/Inorganic Data Review. Validation qualifiers are listed in Table 2.2 and are written in the margin of the analytical data sheets provided in Appendix A.

MWH prepared a new project QAPP in March 2001 that was approved by the Agencies in November 2001. Compuchem began analyzing effluent samples in accordance with the new QAPP in January 2002.

3.0 TREATMENT SYSTEM PROCESS MODIFICATIONS

During the first quarter of 2002, the GWTP continued to treat groundwater collected by the BWES and PGCS. During this monitoring period, a thermal oxidizer and scrubber were installed in the GWTP. The thermal oxidizer/scrubber will be used to treat the vapors extracted from the Off-Site Area through the In-Situ Vapor Extraction (ISVE) system. MWH also began to test the newly installed Off-Site Area ISVE system, though start-up did not begin until the second quarter 2002 (April). The thermal oxidizer/scrubber is only housed at the groundwater treatment building and is not part of the GWTP treatment process. Details regarding installation and startup of the thermal oxidizer/scrubber will be included in the construction completion documentation for the ISVE system to be submitted under separate cover.

4.0 PGCS AND BWES GAUGING ACTIVITIES

The PGCS trench groundwater extraction wells were operated in "auto" mode continuously throughout the first quarter 2002. In "auto" mode, each of the PGCS extraction wells are set to turn on or off automatically based on water levels within the Aeration Equalization Tank (T-102) and the individual extraction wells. This mode is used to control the flowrate through the treatment system. The GWTP also received influent from the BWES during the first quarter 2002.

In accordance with the PSVP for the Site, a discussion on the effect of the PGCS and BWES on the water table near the Site is presented in each quarterly monitoring report. This section presents a discussion on the groundwater elevation findings during the months of January, February, and March 2002. Groundwater elevation measurements were collected throughout the Site on March 18, 2002 as part of the groundwater monitoring program. The groundwater elevations and resulting contours outside the barrier wall are shown on Figure 4.1.

The water table contours shown in Figure 4.1 indicate that the PGCS continues to create a depression in the water table, which acts to contain groundwater flowing around the northern edge of the barrier wall.

To keep track of the groundwater table inside the barrier wall, water levels were collected from the various interior piezometers on a regular basis, as shown in Table 4.1. Seven piezometers were measured in the On-Site Area (P29, P31, P32, P36, P49, P106, and P108). Seven piezometers were also measured in the Off-Site Area (P96, P110, P112, P113, P114, P116, and P118). The piezometers were measured regularly throughout the quarter, except for P31, P106, P113, and P114 which, were not added to the water level sampling regime until January 25, 2002. The water level data from these piezometers are depicted graphically on Figures 4.3 and 4.4. Water levels measured outside of the barrier wall are summarized on Table 4.2.

The barrier wall was constructed to contain a contaminated zone under the Site and the BWES was installed to collect the impacted water within the barrier wall. Piezometers were installed in pairs, one piezometer of each pair on either side of the barrier wall, at each of the BWES trench locations. This allows measurement and tracking of water levels in order to ensure that the barrier wall is serving its designed function.

As part of the optimization of the groundwater treatment plant and BWES upgrades, MWH began active dewatering of the Off-Site Area through increased groundwater pumping rates on September 25, 2001. The water levels inside the barrier wall are being decreased for operation of the in-situ soil vapor extraction (ISVE) systems. Groundwater elevations inside and outside the barrier wall were monitored on March 18, 2002. Figure 4.1 illustrates these groundwater elevations. Fluctuations in the gradient across the barrier wall occur due to seasonal groundwater conditions, pumping rates from the BWES, and infiltration into the Site groundwater. However, the groundwater elevations measured in

the piezometers indicated that the elevations outside the barrier wall were 2.35 feet to 11.80 feet higher than the elevations inside the barrier wall.

The one exception was at On-Site Area piezometers P107 and P108, where the water level was 0.26 feet higher inside the wall. This is due in part to the current focused dewatering of the Off-Site Area to allow for operation of the ISVE systems in the Off-Site Containment Area and Kapica-Pazmey Area. In addition, the northern portion of the On-Site Area around P108 has some of the highest rainfall infiltration rates due to the presence of sandy soil, including the sand used to backfill drum excavation area A during the 2001 drum removal. Finally, P108 is located 200 feet from the nearest extraction well (EW-18).

These data demonstrate that the barrier wall is successfully performing the intended function of isolating and containing the groundwater from the known source areas of the Site inside the barrier wall.

Water levels from the piezometers measured March 18, 2002 are tabulated below:

Piezometer[1]	Location[2]	Water Level	Difference[3]
ORCPZ102	Outside	633.32	-4.41
P113	Inside	628.91	
P95	Outside	632.68	-11.80
P96	Inside	620.88	
P105	Outside	635.36	-2.35
P106	Inside	633.01	
P107	Outside	634.06	0.26
P108	Inside	634.32	
P109	Outside	635.05	-6.23
P110	Inside	628.82	
P111	Outside	634.08	-9.58
P112	Inside	624.50	
P115	Outside	633.52	-3.68
P114	Inside	629.84	
P117	Outside	633.96	-4.61
P116	Inside	629.35	

Notes:

1. Piezometers P93 and P94 have been destroyed, but are scheduled to be replaced during the installation of the ISVE extraction wells in the On-Site Area.
2. Location indicates inside or outside the barrier wall.
3. A positive value indicates that the water level is higher inside the barrier wall. A negative value indicates that the water level is lower inside the barrier wall.

TMK/JDP/RAA/PJV/jmf
J:\209\0601 ACS\0116 GWTP\6010116a074.doc
2090603.030102

Table 2.1
Groundwater Treatment System Effluent Discharge Limits
American Chemical Service NPL Site
Griffith, Indiana

Groundwater Quality Parameter	Effluent Standard (Limit)
General Water Quality Parameters	
PH	6 - 9 S.U.
BOD-5	30 mg/L
TSS	30 mg/L
Inorganics	
Arsenic	50 µg/L
Beryllium	NE
Cadmium	4.1 µg/L
Manganese	NE
Mercury	0.02 µg/L (w/DL = 0.64)
Selenium	8.2 µg/L
Thallium	NE
Zinc	411 µg/L
Volatile Organics	
Acetone	6,800 µg/L
Benzene	5 µg/L
2-Butanone	210 µg/L
Chloromethane	NE
1,4 – Dichlorobenzene	NE
1,1 – Dichloroethane	NE
1,2 – Dichloroethene – cis	70 µg/L
Ethylbenzene	34 µg/L
Methylene chloride	5 µg/L
Tetrachloroethene	5 µg/L
Trichloroethene	5 µg/L
Vinyl chloride	2 µg/L
4 – Methyl - 2 – pentanone	15 µg/L
Semi-Volatile Organics	
bis(2 – Chloroethyl) ether	9.6 µg/L
bis(2 – Ethylhexyl) phthalate	6 µg/L
Isophorone	50 µg/L
4 – Methylphenol	34 µg/L
Pentachlorophenol	1 µg/L
PCBs	
PCBs	0.00056 µg/L (w/DL = 0.1 to 0.9)

Notes:

NE = No effluent limit established.

DL = Detection limit

S.U. = Standard Units (pH)

µg/L = micrograms per liter

mg/L = micrograms per liter

Table 2.2
Summary of Effluent Analytical Results - First Quarter 2002
Groundwater Treatment System
American Chemical Service NPL Site
Griffith, Indiana

Event Date	Month 56 1/28/02	Month 57 2/13/02	Month 58 3/7/02	Effluent Limits	Lab Reporting
pH	7.27 /J	7 66	7.65	6-9	none
TSS	10.30	8.00	2.4	30	10
BOD	62	14	10.5	30	2
Arsenic	2.0 B/	ND	ND	50	3.4
Beryllium	ND	ND	ND	NE	0.2
Cadmium	ND	ND	ND	4.1	0.3
Manganese	109 /B	41 2	2.2 B/	NE	10
Mercury	ND	ND	ND	0.02 (w/DL = 0.64)	0.64
Selenium	2.6 B/UB	3.0 B/UB	ND	8.2	4.3
Thallium	ND	ND	ND	NE	5.7
Zinc	ND	ND	ND	411	1.2
Benzene	ND	ND	ND	5	0.5
Acetone	8,000 D/	450 DB/BJ	2,200 DB/	6,800	3
2-Butanone	ND /UJ	2 J/	ND	210	3
Chloromethane	ND /UJ	ND	ND	NE	0.5
1,4-Dichlorobenzene	ND /UJ	ND	ND	NE	0.5
1,1-Dichloroethane	ND /UJ	ND	ND	NE	0.5
cis-1,2-Dichloroethene	ND /UJ	ND	ND	70	0.5
Ethylbenzene	ND /UJ	ND	1	34	0.5
Methylene chloride	0.6 B/UBJ	ND	0.1 J/	5	0.6
Tetrachloroethene	ND /UJ	ND	ND	5	0.5
Trichloroethene	ND /UJ	ND	ND	5	0.5
Vinyl chloride	ND /UJ	ND	ND	2	0.5
4-Methyl-2-pentanone	ND /UJ	ND	ND	15	3
bis (2-Chloroethyl) ether	ND	ND /UJ	ND	9.6	9.6
bis(2-Ethylhexyl) - phthalate	0.95 JB/10 UB	ND /UJ	0.8 JB/10 UB	6	6
4 - Methylphenol	ND	ND /UJ	ND	34	10
Isophorone	ND	ND /UJ	ND	50	10
Pentachlorophenol	ND	ND /UJ	ND	1	1
PCB/Aroclor-1016	ND	ND /UJ	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1221	ND	ND /UJ	ND	0.00056 (w/DL = 0.1 to 0.9)	0.92*
PCB/Aroclor-1232	ND	ND /UJ	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1242	ND	ND /UJ	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1248	ND	ND /UJ	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1254	ND	ND /UJ	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1260	ND	ND /UJ	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5
Effluent Flow (gallons)	2,084,279	1,270,530	1,582,547	NE	none

Notes:
Data has been validated in accordance with the Project QAPP (November 2001) and the U.S. EPA National Functional Guidelines for Organic Data Review
Shaded cells indicate discharge exceedances
pH data is expressed in S.U.
TSS and BOD5 data is expressed in mg/L
Metals, VOC, SVOC and PCB data is expressed in ug/L
ND = Not detected
NE = No effluent limit established.
NA = Sample not analyzed for this compound
* = Approved SW-846 method is incapable of achieving effluent limit.

Suffix Definitions:
_/ = Data qualifier added by laboratory
/_ = Data qualifier added by data validator
B = Compound is also detected in the blank
E = Compound exceeds the upper level of calibration range of instrument
J = Result is detected below the reporting limit and is an estimated concentration
Q = Sample was analyzed out of the recommended holding time
R = Quality control indicates the data is not usable
JB = Analyte is detected in the compliance sample below the reporting limit and is an estimated concentration and the compound is also detected in the method blank resulting in a potential high bias
U = Analyte is not detected at or above the indicated concentration
UB = Analyte is not detected at or above the indicated concentration due to blank contamination
UJ = Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value
D = Result obtained after diluting sample

Table 4.1
Water Levels Inside Barrier Wall - First Quarter 2002
American Chemical Service NPL Site
Griffith, Indiana

Date	On-Site Area						
	P-29	P-31	P-32	P-36	P-49	P-106	P-108
4-Jan-02	633.4	NA	633.5	634.1	631.7	NA	633.2
11-Jan-02	633.3	NA	633.4	633.8	631.7	NA	633.2
18-Jan-02	633.0	NA	633.3	633.5	631.6	NA	633.1
25-Jan-02	632.9	633.8	633.3	633.4	631.4	632.3	633.1
1-Feb-02	633.2	634.5	633.6	633.2	630.8	632.7	633.7
8-Feb-02	633.4	634.6	633.7	633.7	631.5	633.0	633.5
15-Feb-02	633.6	634.7	633.9	633.8	631.6	633.2	633.7
22-Feb-02	633.7	635.0	634.1	633.8	631.6	633.3	633.9
1-Mar-02	633.8	635.0	634.1	634.0	631.6	633.4	633.9
8-Mar-02	633.9	635.5	634.6	634.6	632.0	632.9	634.9
14-Mar-02	634.0	635.7	634.8	635.3	632.3	632.7	634.6
22-Mar-02	633.7	635.1	634.2	634.9	631.7	632.6	634.1
29-Mar-02	633.7	635.3	634.3	634.9	632.0	632.8	634.2

Date	Off-Site Area						
	P-96	P-110	P-112	P-113	P-114	P-116	P-118
4-Jan-02	628.0	631.4	630.6	NA	NA	631.6	630.8
11-Jan-02	624.6	630.7	630.9	NA	NA	631.1	630.5
18-Jan-02	626.0	630.8	630.7	NA	NA	630.6	630.2
25-Jan-02	625.0	630.5	630.4	631.0	631.4	630.6	630.1
1-Feb-02	622.3	629.9	628.5	630.7	631.1	630.1	629.6
8-Feb-02	624.4	630.1	629.0	630.5	630.9	630.2	629.5
15-Feb-02	623.2	629.7	627.5	629.9	630.8	630.2	629.3
22-Feb-02	621.9	629.3	626.3	629.7	630.4	629.8	628.9
1-Mar-02	621.0	629.3	624.8	629.3	630.1	629.6	628.6
8-Mar-02	621.8	629.1	624.8	629.2	630.1	629.8	628.7
14-Mar-02	622.1	628.9	624.5	628.9	629.9	629.5	628.4
22-Mar-02	620.9	628.9	624.6	628.7	629.7	629.3	628.0
29-Mar-02	620.9	628.7	624.4	628.6	629.6	629.1	627.8

Notes:

NA = Not sampled.

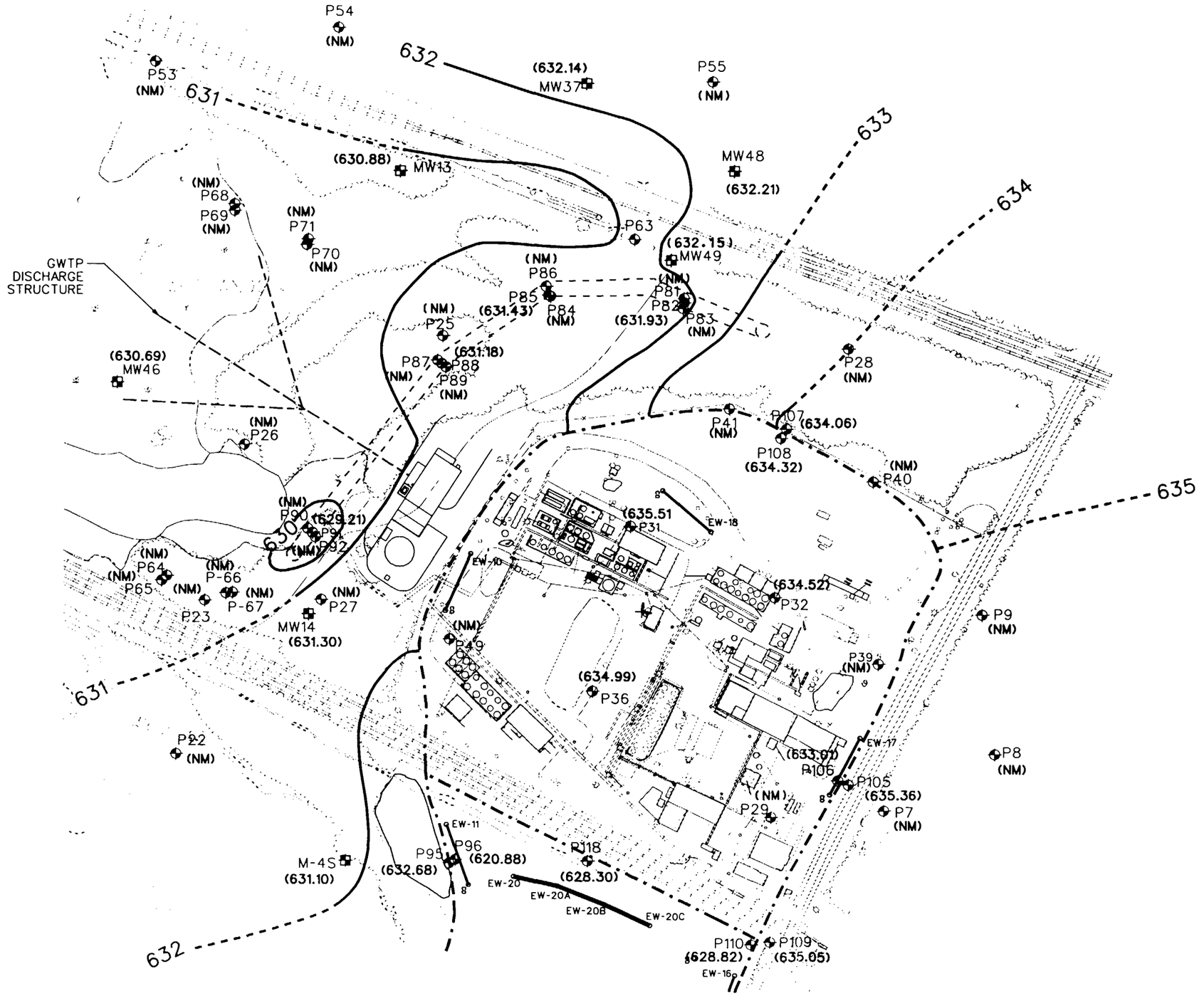
All water level elevations are in feet AMSL

Table 4.2
Water Levels Outside the Barrier Wall - First Quarter 2002
American Chemical Service NPL Site
Griffith, Indiana

Well Designation	Elevation
MW13	630.88
MW14	631.30
MW37	632.14
MW46	630.69
MW48	632.21
MW49	632.15
M-4S	631.10
P82	631.93
P85	631.43
P88	631.18
P91	629.21
P105	635.36
P109	635.05

Note: Elevations were measured on March 18, 2002.

FIGURES



LEGEND

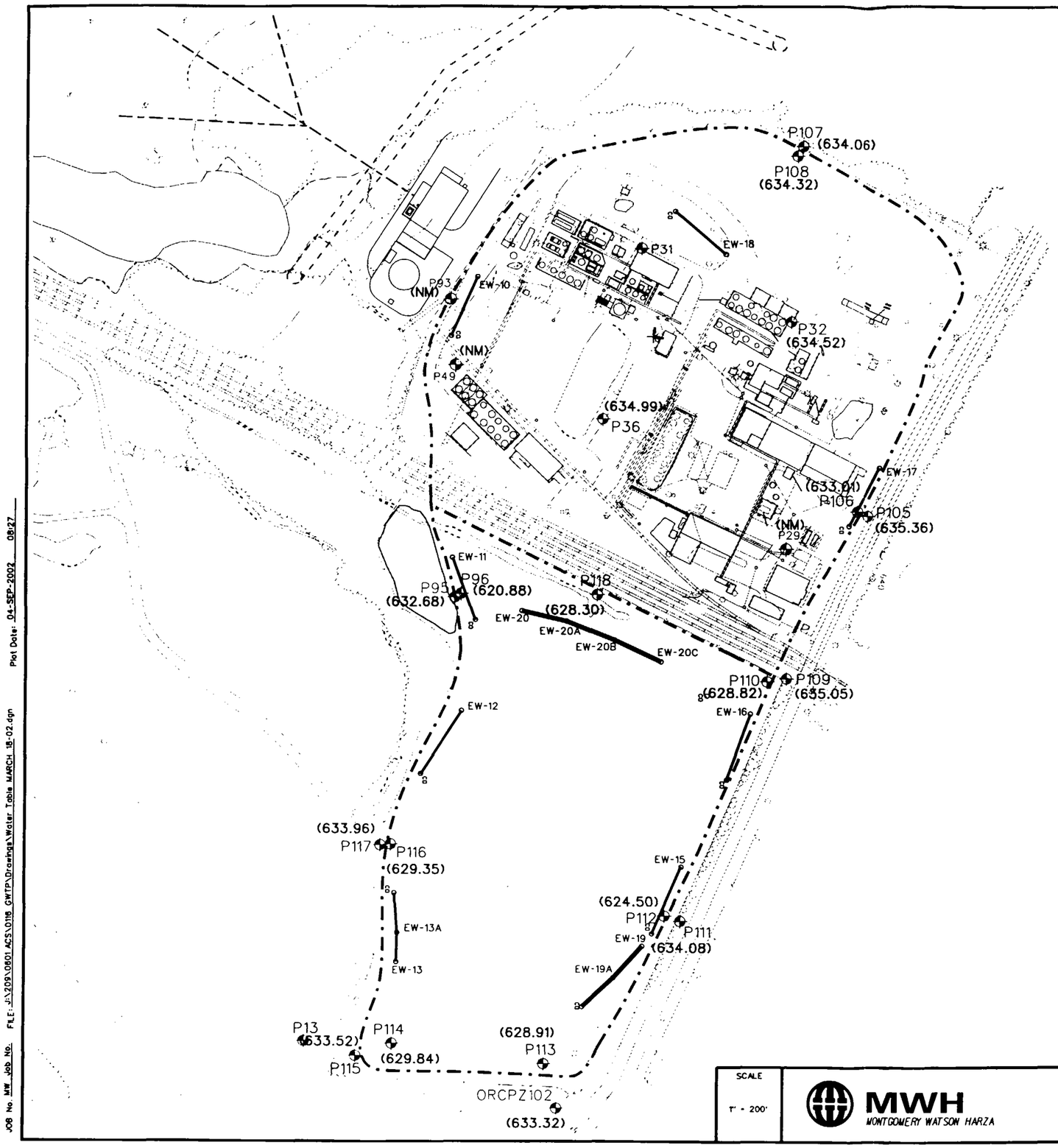
- P106 — PIEZOMETER LOCATION AND DESIGNATION
- ORCPZ7 — ORC PIEZOMETER LOCATION AND DESIGNATION
- MONITORING WELL LOCATION AND DESIGNATION
- (DRY) — WELL/STAFF GAUGE WAS DRY DURING MEASURING
- (NM) — NOT MEASURED
- (631.78) — GROUNDWATER ELEVATION
- BARRIER WALL
- PERIMETER GROUND WATER CONTAINMENT SYSTEM EXTRACTION TRENCH
- EW-11 — BWES EXTRACTION TRENCH LOCATION AND DESIGNATION
- 631 — GROUNDWATER ELEVATION CONTOUR BASED ON GROUNDWATER ELEVATION DATA
- 631 — CONTOUR LINE DASHED WHERE ELEVATION IS INFERRED

NOTE

1. GROUNDWATER ELEVATIONS WERE MEASURED AT THE SITE ON MARCH 18, 2002.
2. CONTOUR LINES WERE DEVELOPED IN CONJUNCTION WITH THE MARCH 2002 GROUNDWATER MONITORING REPORT (SEE FIGURE 1).

SCALE			FIGURE
1" = 200'	MWH MONTGOMERY WATSON HARZA	AMERICAN CHEMICAL SERVICE, INC. GRIFFITH, INDIANA	WATER TABLE ELEVATIONS NEAR THE PGCS MARCH 2002	4.1

JOB No. MW Job No. FILE: J:\209\0801.ACS\0116 GWTP\Drawings\Water Table March 02.dgn Plot Date: 03-SEP-2002 14:31



N

0 200

SCALE IN FEET

LEGEND

P106	PIEZOMETER LOCATION AND DESIGNATION
ORCPZ7	ORC PIEZOMETER LOCATION AND DESIGNATION
	MONITORING WELL LOCATION AND DESIGNATION
	STAFF GAUGE LOCATION AND DESIGNATION
(DRY)	WELL/STAFF GAUGE WAS DRY DURING MEASURING
(NM)	NOT MEASURED
(631.78)	GROUNDWATER ELEVATION
	BARRIER WALL
EW-11	BWES EXTRACTION TRENCH LOCATION AND DESIGNATION
	PERIMETER GROUND WATER CONTAINMENT SYSTEM EXTRACTION TRENCH

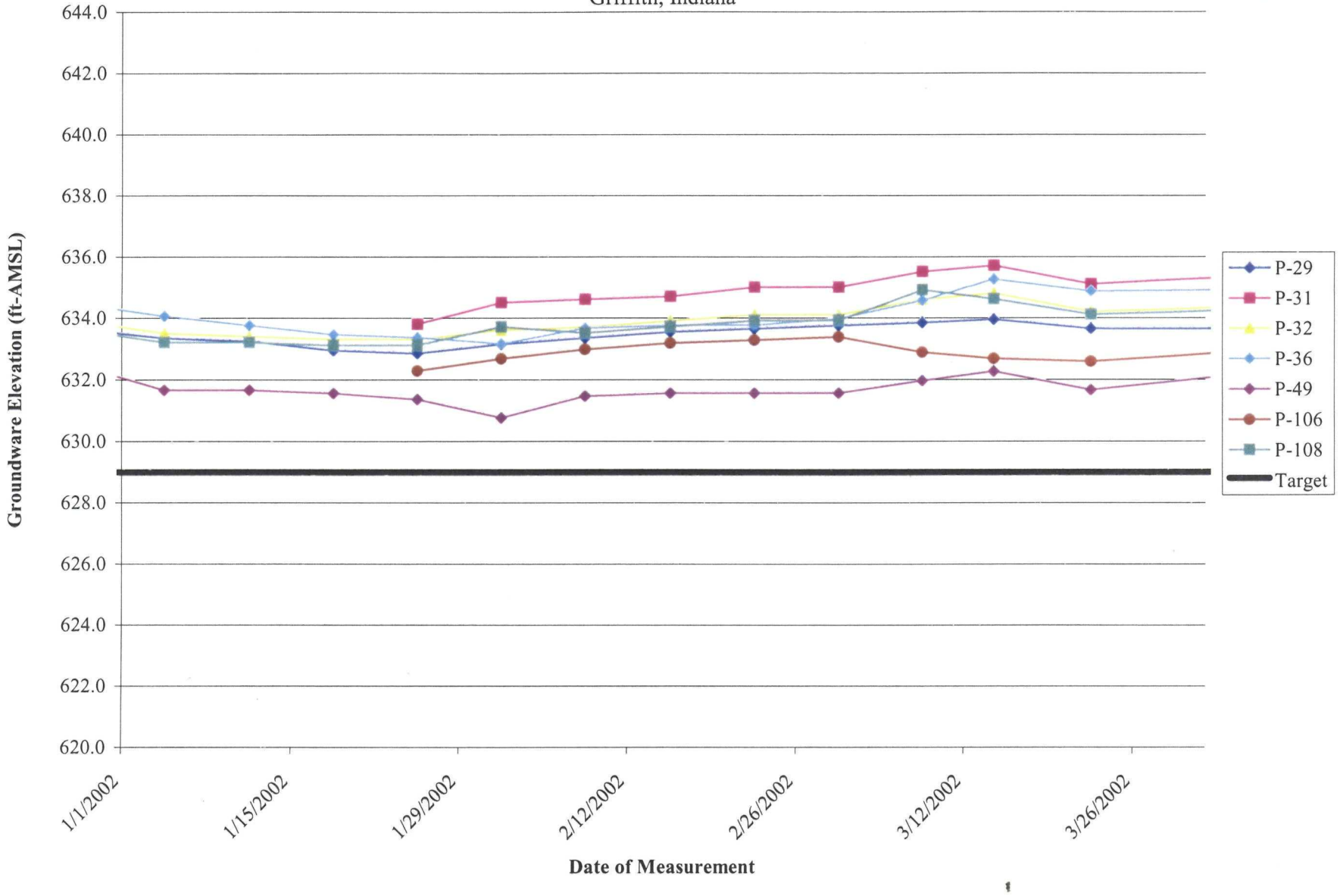
NOTE

1. GROUNDWATER ELEVATIONS WERE MEASURED AT THE SITE ON MARCH 18, 2002

SCALE 1" = 200'	MWH MONTGOMERY WATSON HARZA	AMERICAN CHEMICAL SERVICE, INC. GRIFFITH, INDIANA	WATER TABLE ELEVATIONS ACROSS THE BARRIER WALL MARCH 2002	FIGURE 4.2

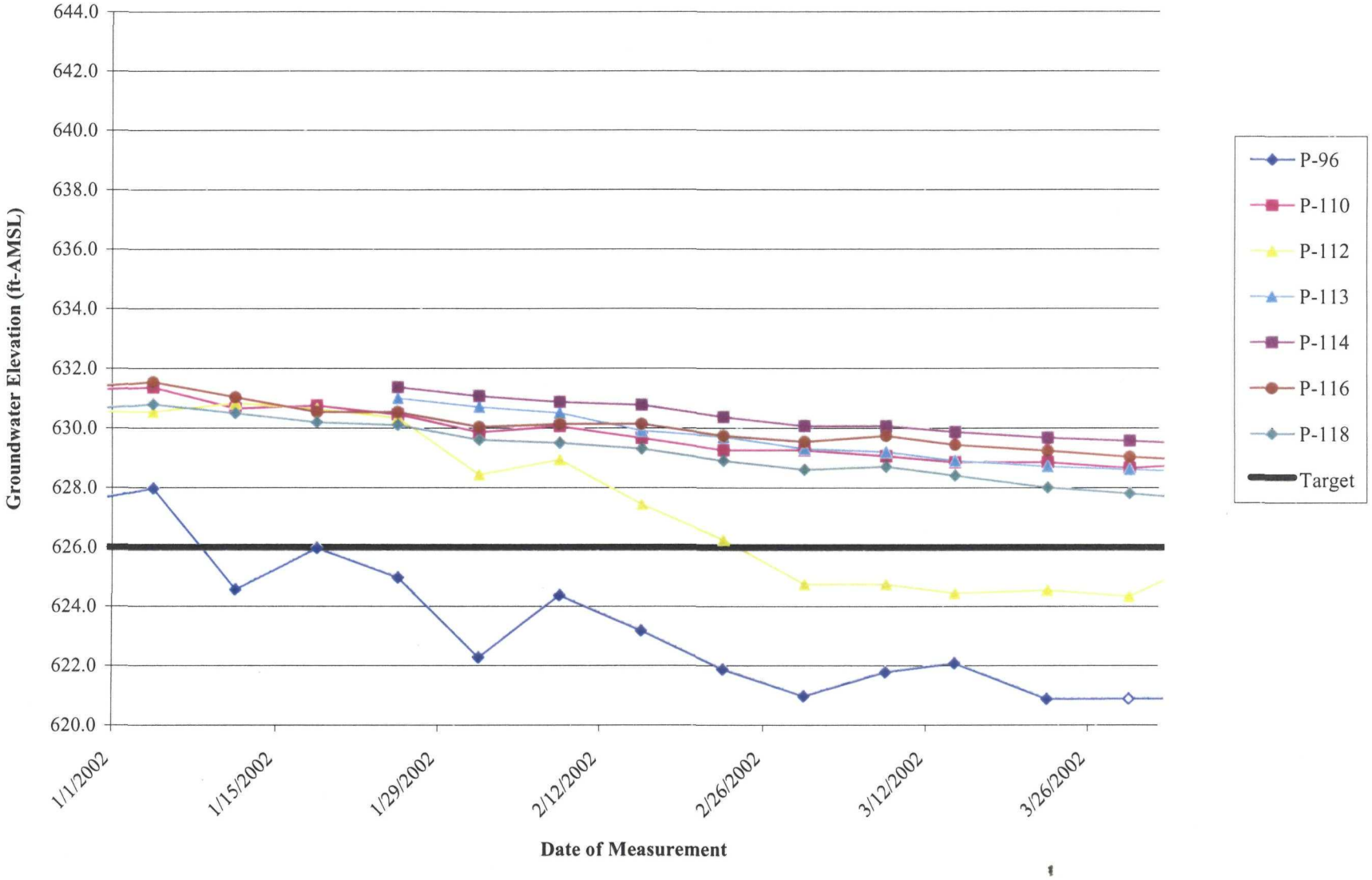
JOB No. MW Job No. FILE: J:\2209\0601 ACS\0118_GWTP\Drawings\Water Table MARCH 18-02.dgn Plot Date: 04-SEP-2002 08:27

Figure 4.3
Water Level Trends Inside Barrier Wall (On-Site Area)
ACS NPL Site
Griffith, Indiana



TMK/JDP
J:/209/0603/0301/6030301a011.xls/On-Site Chart

Figure 4.4
Water Level Trends Inside Barrier Wall (Off-Site Area)
ACS NPL Site
Griffith, Indiana



TMK/JDP
J:/209/0603/0301/6030301a011.xls/Off-Site Chart

APPENDIX A

EFFLUENT ANALYTICAL DATA

January 28, 2002 Compliance Sample
Laboratory Results

7989

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 02/05/02

SAMPLE NUMBER- 193432 SAMPLE ID- EFFLUENT SAMPLE MATRIX- WW
DATE SAMPLED- 01/28/02 TIME SAMPLED- 1400
DATE RECEIVED- 01/29/02 SAMPLER- NOT SPECIFIED RECEIVED BY- ALT
TIME RECEIVED- 1405 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : ACS-89

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS	PQL
BIOCHEMICAL OXYGEN DEMAND	EPA 405.1	01/30/02	LEB	62	mg/L	2

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR

7989 A5

3/5/02

SW-846 A

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: CompuChem Contract:

Lab Code: LIBRTY Case No.: NRAS No.:

SDG No.: RW1024

Matrix (soil/water): WATER Lab Sample ID: RW1024-1

Date Received: 1/29/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): pH units

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
pH	7.27				1/31/02 J
TSS	10.3				1/30/02

3/8/02

Comments:

2

SW846 METALS

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: _____

Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: RW1024

Matrix (soil/water): WATER Lab Sample ID: RW1024-1

Level (low/med): LOW Date Received: 01/29/02

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	113			P	UB
7440-36-0	Antimony	3.4	B		P	UB
7440-38-2	Arsenic	2.0	B		P	
7440-39-3	Barium	93.3			P	B
7440-41-7	Beryllium	0.30	U		P	
7440-43-9	Cadmium	0.30	U		P	
7440-70-2	Calcium	104000			P	B
7440-47-3	Chromium	0.90	U		P	
7440-48-4	Cobalt	2.0	U		P	
7440-50-8	Copper	4.5	B		P	
7439-89-6	Iron	274			P	
7439-92-1	Lead	1.6	U		P	
7439-95-4	Magnesium	37500			P	B
7439-96-5	Manganese	109			P	B
7439-97-6	Mercury	0.64	U		CV	
7440-02-0	Nickel	7.3			P	
7440-09-7	Potassium	13100			P	B
7782-49-2	Selenium	2.6	B		P	UB
7440-22-4	Silver	0.50	U		P	
7440-23-5	Sodium	68900			P	
7440-28-0	Thallium	3.0	U		P	
7440-62-2	Vanadium	1.7	U		P	
7440-66-6	Zinc	4.6	U		P	

fr 3/5/07

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RW1024

Matrix: (soil/water) WATER Lab Sample ID: RW1024-1

Sample wt/vol: 25 (g/ml) ML Lab File ID: RW1024-1A51

Level: (low/med) LOW Date Received: 01/29/02

% Moisture: not dec. _____ Date Analyzed: 02/05/02

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(u

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	0.5	U	UJ
75-01-4	Vinyl Chloride	0.5	U	
74-83-9	Bromomethane	0.5	U	
75-00-3	Chloroethane	0.5	U	
75-35-4	1,1-Dichloroethene	0.5	U	
75-15-0	Carbon disulfide	0.5	U	
67-64-1	Acetone	5700	E	RJ
75-09-2	Methylene Chloride	0.6	B	UBJ
156-60-5	trans-1,2-Dichloroethene	0.5	U	UJ
75-34-3	1,1-Dichloroethane	0.5	U	
156-59-2	cis-1,2-Dichloroethene	0.5	U	
78-93-3	2-butanone	3	U	R UJ
67-66-3	Chloroform	0.5	U	UJ
71-55-6	1,1,1-Trichloroethane	0.5	U	
56-23-5	Carbon Tetrachloride	0.5	U	
71-43-2	Benzene	0.5	U	
107-06-2	1,2-Dichloroethane	0.5	U	
79-01-6	Trichloroethene	0.5	U	
78-87-5	1,2-Dichloropropane	0.5	U	
75-27-4	Bromodichloromethane	0.5	U	
10061-01-5	cis-1,3-Dichloropropene	0.5	U	
108-10-1	4-Methyl-2-pentanone	3	U	
108-88-3	Toluene	0.1	J	J
10061-02-6	trans-1,3-Dichloropropene	0.5	U	UJ
79-00-5	1,1,2-Trichloroethane	0.5	U	
127-18-4	Tetrachloroethene	0.5	U	
591-78-6	2-hexanone	3	U	R
124-48-1	Dibromochloromethane	0.5	U	UJ
108-90-7	Chlorobenzene	0.5	U	
100-41-4	Ethylbenzene	0.5	U	
108-38-3	m,p-Xylene	1	U	
95-47-6	o-Xylene	0.5	U	
100-42-5	Styrene	0.5	U	

FORM I VOA

2/5/02

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RW1024

Matrix: (soil/water) WATER Lab Sample ID: RW1024-1

Sample wt/vol: 25 (g/ml) ML Lab File ID: RW1024-1A51

Level: (low/med) LOW Date Received: 01/29/02

% Moisture: not dec. _____ Date Analyzed: 02/05/02

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-25-2	Bromoform	0.5	U
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U
106-46-7	1,4-Dichlorobenzene	0.5	U
540-59-0	1,2-Dichloroethene (total)	0.5	U
1330-20-7	Xylene (total)	0.5	U

UJ ↓

2/5/02

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENTDL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RW1024

Matrix: (soil/water) WATER Lab Sample ID: RW1024-1

Sample wt/vol: 25 (g/ml) ML Lab File ID: RW1024-1D2A51

Level: (low/med) LOW Date Received: 01/29/02

% Moisture: not dec. _____ Date Analyzed: 02/05/02

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 83.3

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	42	U
75-01-4	Vinyl Chloride	42	U
74-83-9	Bromomethane	42	U
75-00-3	Chloroethane	42	U
75-35-4	1,1-Dichloroethene	42	U
75-15-0	Carbon disulfide	42	U
67-64-1	Acetone	8000	D
75-09-2	Methylene Chloride	42	U
156-60-5	trans-1,2-Dichloroethene	42	U
75-34-3	1,1-Dichloroethane	42	U
156-59-2	cis-1,2-Dichloroethene	42	U
78-93-3	2-butanone	210	U
67-66-3	Chloroform	4	DJB
71-55-6	1,1,1-Trichloroethane	42	U
56-23-5	Carbon Tetrachloride	42	U
71-43-2	Benzene	42	U
107-06-2	1,2-Dichloroethane	42	U
79-01-6	Trichloroethene	42	U
78-87-5	1,2-Dichloropropane	42	U
75-27-4	Bromodichloromethane	42	U
10061-01-5	cis-1,3-Dichloropropene	42	U
108-10-1	4-Methyl-2-pentanone	210	U
108-88-3	Toluene	5	DJ
10061-02-6	trans-1,3-Dichloropropene	42	U
79-00-5	1,1,2-Trichloroethane	42	U
127-18-4	Tetrachloroethene	42	U
591-78-6	2-hexanone	210	U
124-48-1	Dibromochloromethane	42	U
108-90-7	Chlorobenzene	42	U
100-41-4	Ethylbenzene	42	U
108-38-3	m,p-Xylene	83	U
95-47-6	o-Xylene	42	U
100-42-5	Styrene	42	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENTDL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RW1024

Matrix: (soil/water) WATER Lab Sample ID: RW1024-1

Sample wt/vol: 25 (g/ml) ML Lab File ID: RW1024-1D2A51

Level: (low/med) LOW Date Received: 01/29/02

% Moisture: not dec. _____ Date Analyzed: 02/05/02

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 83.3

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(u

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-25-2	Bromoform	42	U
79-34-5	1,1,2,2-Tetrachloroethane	42	U
106-46-7	1,4-Dichlorobenzene	42	U
540-59-0	1,2-Dichloroethene (total)	42	U
1330-20-7	Xylene (total)	42	U

3/5/02

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 8270C

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RW1024

Matrix: (soil/water) WATER Lab Sample ID: RW1024-1

Sample wt/vol: 500 (g/mL) ML Lab File ID: RW1024-1JA66

Level: (low/med) LOW Date Received: 01/29/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted:01/29/02

Concentrated Extract Volume: 500(uL) Date Analyzed: 01/30/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	Bis(2-chloroethyl)ether	9.6	U
106-44-5	4-Methylphenol	10	U
78-59-1	*Isophorone*	10	U
117-81-7	bis(2-ethylhexyl)Phthalate	0.95	JB

10 uB

1/5/07

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: PHENOL-SIM

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RW1024

Matrix: (soil/water) WATER Lab Sample ID: RW1024-1

Sample wt/vol: 500 (g/mL) ML Lab File ID: RW1024-1A70

Level: (low/med) LOW Date Received: 01/29/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted:01/24/02

Concentrated Extract Volume: 500(uL) Date Analyzed: 02/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
87-86-5	Pentachlorophenol	1	U

3/5/02

FORM I SV

1D

GC EXTRACTABLE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 8082

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RW1024

Matrix: (soil/water) WATER Lab Sample ID: RW1024-1

Sample wt/vol: 1075 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N)___ Date Received: 01/29/02

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:01/30/02

Concentrated Extract Volume: 5000(uL) Date Analyzed: 01/30/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	0.47	U
11104-28-2	Aroclor-1221	0.93	U
11141-16-5	Aroclor-1232	0.47	U
53469-21-9	Aroclor-1242	0.47	U
12672-29-6	Aroclor-1248	0.47	U
11097-69-1	Aroclor-1254	0.47	U
11096-82-5	Aroclor-1260	0.47	U

3/5/02

February 13, 2002 Compliance Sample
Laboratory Results

CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 02/21/02
P.O. # POC DIANE BYRD

ACS-89

SAMPLE NUMBER- 194162 SAMPLE ID- EFFLUENT SAMPLE MATRIX- WW
DATE SAMPLED- 02/13/02 TIME SAMPLED- 1400
DATE RECEIVED- 02/15/02 SAMPLER- NOT SPECIFIED RECEIVED BY- ALT
TIME RECEIVED- 1125 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : ACS-89

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS	PQL
BIOCHEMICAL OXYGEN DEMAND	EPA 405.1	02/15/02	LEB	14	mg/L	2

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR R.L.L

4/7/02

P.O. Box 12208 • Research Triangle Park, NC 27709 Shipping: 102-A Woodwinds Industrial Court • Cary, NC 27511
Fax (919) 467-3515

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

EFFLUENT

ab lame: CompuChem Contract:

ab Code: LIBRTY Case No.: NRAS No.:

)G lo.: RY1024

atrix (soil/water): WATER Lab Sample ID: RY1024-1

at Received: 2/14/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
TSS	8.00				2/14/02
pH	7.66				2/14/02

4/8/02

Comments:

2

B

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RY1024

Matrix: (soil/water) WATER Lab Sample ID: RY1024-1

Sample wt/vol: 25 (g/ml) ML Lab File ID: RY1024-1B73

Level: (low/med) LOW Date Received: 02/14/02

% Moisture: not dec. _____ Date Analyzed: 02/16/02

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	0.5	U	
75-01-4	Vinyl Chloride	0.5	U	
74-83-9	Bromomethane	0.5	U	
75-00-3	Chloroethane	0.5	U	
75-35-4	1,1-Dichloroethene	0.5	U	
75-15-0	Carbon disulfide	0.5	U	
67-64-1	Acetone	140	EB	BJ
75-09-2	Methylene Chloride	0.5	U	
156-60-5	trans-1,2-Dichloroethene	0.5	U	
75-34-3	1,1-Dichloroethane	0.5	U	
156-59-2	cis-1,2-Dichloroethene	0.5	U	
78-93-3	2-butanone	2	J	
67-66-3	Chloroform	0.5	U	
71-55-6	1,1,1-Trichloroethane	0.5	U	
56-23-5	Carbon Tetrachloride	0.5	U	
71-43-2	Benzene	0.5	U	
107-06-2	1,2-Dichloroethane	0.5	U	
79-01-6	Trichloroethene	0.5	U	
78-87-5	1,2-Dichloropropane	0.5	U	
75-27-4	Bromodichloromethane	0.5	U	
10061-01-5	cis-1,3-Dichloropropene	0.5	U	
108-10-1	4-Methyl-2-pentanone	3	U	
108-88-3	Toluene	0.1	JB	0.5UB
10061-02-6	trans-1,3-Dichloropropene	0.5	U	
79-00-5	1,1,2-Trichloroethane	0.5	U	
127-18-4	Tetrachloroethene	0.5	U	
591-78-6	2-hexanone	3	U	
124-48-1	Dibromochloromethane	0.5	U	
108-90-7	Chlorobenzene	0.5	U	
100-41-4	Ethylbenzene	0.5	U	
108-38-3	m,p-Xylene	1	U	
95-47-6	o-Xylene	0.5	U	
100-42-5	Styrene	0.5	U	

FORM I VOA

4/3/02

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

ab Name: COMPUCHEM Method: 8260B

ab Code: LIBRTY Case No.: SAS No.: SDG No.: RY1024

at ix: (soil/water) WATER Lab Sample ID: RY1024-1

:amnle wt/vol: 25 (g/ml) ML Lab File ID: RY1024-1B73

.ev.l: (low/med) LOW Date Received: 02/14/02

; I'>isture: not dec. _____ Date Analyzed: 02/16/02

3C Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 1.0

So l Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-25-2	Bromoform	0.5	U
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U
106-46-7	1,4-Dichlorobenzene	0.5	U
540-59-0	1,2-Dichloroethene (total)	0.5	U
1330-20-7	Xylene (total)	0.5	U

4/3/02

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENTDL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RY1024

Matrix: (soil/water) WA Lab Sample ID: RY1024-1

Sample wt/vol: 25 (g/ml) ML Lab File ID: RY1024-1D6B73

Level: (low/med) LOW Date Received: 02/14/02

% Moisture: not dec. _____ Date Analyzed: 02/19/02

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 6.2

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	3	U	
75-01-4	Vinyl Chloride	3	U	
74-83-9	Bromomethane	3	U	UJ
75-00-3	Chloroethane	3	U	
75-35-4	1,1-Dichloroethene	3	U	
75-15-0	Carbon disulfide	3	U	
67-64-1	Acetone	450	DB	BJ
75-09-2	Methylene Chloride	3	U	
156-60-5	trans-1,2-Dichloroethene	3	U	
75-34-3	1,1-Dichloroethane	3	U	
156-59-2	cis-1,2-Dichloroethene	3	U	
78-93-3	2-butanone	16	U	
67-66-3	Chloroform	3	U	
71-55-6	1,1,1-Trichloroethane	3	U	
56-23-5	Carbon Tetrachloride	3	U	
71-43-2	Benzene	3	U	
107-06-2	1,2-Dichloroethane	3	U	
79-01-6	Trichloroethene	3	U	
78-87-5	1,2-Dichloropropane	3	U	
75-27-4	Bromodichloromethane	3	U	
10061-01-5	cis-1,3-Dichloropropene	3	U	
108-10-1	4-Methyl-2-pentanone	16	U	
108-88-3	Toluene	0.4	DJB	3UB
10061-02-6	trans-1,3-Dichloropropene	3	U	
79-00-5	1,1,2-Trichloroethane	3	U	
127-18-4	Tetrachloroethene	3	U	
591-78-6	2-hexanone	16	U	
124-48-1	Dibromochloromethane	3	U	
108-90-7	Chlorobenzene	3	U	
100-41-4	Ethylbenzene	3	U	
108-38-3	m,p-Xylene	6	U	
95-47-6	o-Xylene	3	U	
100-42-5	Styrene	3	U	

FORM I VOA

4/3/02

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENTDL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RY1024

Matrix: (soil/water) WA Lab Sample ID: RY1024-1

Sample wt/vol: 25 (g/ml) ML Lab File ID: RY1024-1D6B73

Level: (low/med) LOW Date Received: 02/14/02

% Moisture: not dec. _____ Date Analyzed: 02/19/02

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 6.2

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-25-2	Bromoform	3	U
79-34-5	1,1,2,2-Tetrachloroethane	3	U
106-46-7	1,4-Dichlorobenzene	3	U
540-59-0	1,2-Dichloroethene (total)	3	U
1330-20-7	Xylene (total)	3	U

4/3/02

B2

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 8270C

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RY1024

Matrix: (soil/water) WATER Lab Sample ID: RY1024-1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: RY1024-1RJA64

Level: (low/med) LOW Date Received: 02/14/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted:02/21/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/21/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	Bis(2-chloroethyl)ether	9.6	U
106-44-5	4-Methylphenol	10	U
78-59-1	Isophorone	10	U
117-81-7	bis(2-ethylhexyl)Phthalate	6	U

UJ ↓

4/8/02 ✓

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: PCP-SIM

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RY1024

Matrix: (soil/water) WATER Lab Sample ID: RY1024-1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: RY1024-1A70

Level: (low/med) LOW Date Received: 02/14/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted:02/21/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/01/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
87-86-5	Pentachlorophenol	0.4	U	UJ

4/3/10

1D

GC EXTRACTABLE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 8082

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RY1024

Matrix: (soil/water) WATER Lab Sample ID: RY1024-1

Sample wt/vol: 1100 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N)___ Date Received: 02/14/02

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:02/14/02

Concentrated Extract Volume: 5000(uL) Date Analyzed: 02/16/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	0.45	U
11104-28-2	Aroclor-1221	0.91	U
11141-16-5	Aroclor-1232	0.45	U
53469-21-9	Aroclor-1242	0.45	U
12672-29-6	Aroclor-1248	0.45	U
11097-69-1	Aroclor-1254	0.45	U
11096-82-5	Aroclor-1260	0.45	U

UJ

2/18/02

March 7, 2002 Compliance Sample
Laboratory Results

A2

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 8270C

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RA1024

Matrix: (soil/water) WATER Lab Sample ID: RA1024-1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: RA1024-1A60

Level: (low/med) LOW Date Received: 03/08/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/10/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/12/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
111-44-4	Bis(2-chloroethyl)ether	9.6	U	
106-44-5	4-Methylphenol	10	U	
78-59-1	Isophorone	10	U	
117-81-7	bis(2-ethylhexyl)Phthalate	0.8	JB	10 UB

4/8/07

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Method: 8260B

ab Code: LIBRTY Case No.: SAS No.: SDG No.: RA1024

Matrix: (soil/water) WATER Lab Sample ID: RA1024-1

ample wt/vol: 25 (g/ml) ML Lab File ID: RA1024-1B73

Level: (low/med) LOW Date Received: 03/08/02

Moisture: not dec. _____ Date Analyzed: 03/12/02

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 1.0

oil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
75-25-2	Bromoform	0.5	U	
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	
541-73-1	1,3-Dichlorobenzene	0.5	U	
106-46-7	1,4-Dichlorobenzene	0.5	U	
95-50-1	1,2-Dichlorobenzene	0.5	U	
120-82-1	1,2,4-Trichlorobenzene	0.5	U	
540-59-0	1,2-Dichloroethene (total)	0.5	U	
1330-20-7	Xylene (total)	9	B	B

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RA1024

Matrix: (soil/water) WATER Lab Sample ID: RA1024-1

Sample wt/vol: 25 (g/ml) ML Lab File ID: RA1024-1B73

Level: (low/med) LOW Date Received: 03/08/02

Moisture: not dec. _____ Date Analyzed: 03/12/02

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	0.5	U	
75-01-4	Vinyl Chloride	0.5	U	
74-83-9	Bromomethane	0.5	U	
75-00-3	Chloroethane	0.5	U	
75-35-4	1,1-Dichloroethene	0.5	U	
75-15-0	Carbon disulfide	0.5	U	
67-64-1	Acetone	1800	EB	BJ
75-09-2	Methylene Chloride	0.1	J	
156-60-5	trans-1,2-Dichloroethene	0.5	U	
75-34-3	1,1-Dichloroethane	0.5	U	
156-59-2	cis-1,2-Dichloroethene	0.5	U	
78-93-3	2-butanone	3	U	
67-66-3	Chloroform	0.5	U	
71-55-6	1,1,1-Trichloroethane	0.5	U	
56-23-5	Carbon Tetrachloride	0.5	U	
71-43-2	Benzene	0.5	U	
107-06-2	1,2-Dichloroethane	0.5	U	
79-01-6	Trichloroethene	0.5	U	
78-87-5	1,2-Dichloropropane	0.5	U	
75-27-4	Bromodichloromethane	0.5	U	
10061-01-5	cis-1,3-Dichloropropene	0.5	U	
108-10-1	4-Methyl-2-pentanone	3	U	
108-88-3	Toluene	0.05	J	
10061-02-6	trans-1,3-Dichloropropene	0.5	U	
79-00-5	1,1,2-Trichloroethane	0.5	U	
127-18-4	Tetrachloroethene	0.5	U	
591-78-6	2-hexanone	3	U	
124-48-1	Dibromochloromethane	0.5	U	
108-90-7	Chlorobenzene	0.5	U	
100-41-4	Ethylbenzene	1		
108-38-3	m,p-Xylene	7	B	B
95-47-6	o-Xylene	1		
100-42-5	Styrene	0.5	U	

4/3/02

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENTDL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RA1024

Matrix: (soil/water) WATER Lab Sample ID: RA1024-1

Sample wt/vol: 25 (g/ml) ML Lab File ID: RA1024-1DA73

Level: (low/med) LOW Date Received: 03/08/02

% Moisture: not dec. _____ Date Analyzed: 03/12/02

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 25.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
75-25-2	Bromoform	13	U	
79-34-5	1,1,2,2-Tetrachloroethane	13	U	
541-73-1	1,3-Dichlorobenzene	13	U	
106-46-7	1,4-Dichlorobenzene	13	U	
95-50-1	1,2-Dichlorobenzene	13	U	
120-82-1	1,2,4-Trichlorobenzene	13	U	
540-59-0	1,2-Dichloroethene (total)	13	U	
1330-20-7	Xylene (total)	16	DB	UB

4/3/02

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENTDL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RA1024

Matrix: (soil/water) WATER Lab Sample ID: RA1024-1

Sample wt/vol: 25 (g/ml) ML Lab File ID: RA1024-1DA73

Level: (low/med) LOW Date Received: 03/08/02

% Moisture: not dec. _____ Date Analyzed: 03/12/02

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 25.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	13	U	
75-01-4	Vinyl Chloride	13	U	
74-83-9	Bromomethane	13	U	
75-00-3	Chloroethane	13	U	
75-35-4	1,1-Dichloroethene	13	U	
75-15-0	Carbon disulfide	13	U	
67-64-1	Acetone	2200	DB	
75-09-2	Methylene Chloride	13	U	
156-60-5	trans-1,2-Dichloroethene	13	U	
75-34-3	1,1-Dichloroethane	13	U	
156-59-2	cis-1,2-Dichloroethene	13	U	
78-93-3	2-butanone	63	U	
67-66-3	Chloroform	13	U	
71-55-6	1,1,1-Trichloroethane	13	U	
56-23-5	Carbon Tetrachloride	13	U	
71-43-2	Benzene	13	U	
107-06-2	1,2-Dichloroethane	13	U	
79-01-6	Trichloroethene	13	U	
78-87-5	1,2-Dichloropropane	13	U	
75-27-4	Bromodichloromethane	13	U	
10061-01-5	cis-1,3-Dichloropropene	13	U	
108-10-1	4-Methyl-2-pentanone	63	U	
108-88-3	Toluene	13	U	
10061-02-6	trans-1,3-Dichloropropene	13	U	
79-00-5	1,1,2-Trichloroethane	13	U	
127-18-4	Tetrachloroethene	13	U	
591-78-6	2-hexanone	63	U	
124-48-1	Dibromochloromethane	13	U	
108-90-7	Chlorobenzene	13	U	
100-41-4	Ethylbenzene	3	DJB	13UB
108-38-3	m,p-Xylene	12	DJB	13 UB
95-47-6	o-Xylene	2	DJB	13 UB
100-42-5	Styrene	13	U	

FORM I VOA

4/3/02

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: PHENOL-SIM

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RA1024

Matrix: (soil/water) WATER Lab Sample ID: RA1024-1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: RA1024-1B70

Level: (low/med) LOW Date Received: 03/08/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/10/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/12/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
87-86-5	Pentachlorophenol	1	U

4/3/02

1D

GC EXTRACTABLE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 8082

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: RA1024

Matrix: (soil/water) WATER Lab Sample ID: RA1024-1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N)___ Date Received: 03/08/02

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:03/09/02

Concentrated Extract Volume: 5000(uL) Date Analyzed: 03/10/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	0.50	U
11096-82-5	Aroclor-1260	0.50	U

4/7/02

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: CompuChem Contract:

Lab Code: LIBRTY Case No.: NRAS No.:

SDG No.: RA1024

Matrix (soil/water): WATER Lab Sample ID: RA1024-1

Date Received: 3/8/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
pH	7.650				3/8/02
TSS	2.40				3/8/02

9 4/1/02

Comments:

2